



NET ZERO BY 2050

A sustainable future
for your farm and
our planet.

Canadian dairy farmers have a long history as stewards of our natural resources. Your collective focus on sustainable practices contributes to the continued, long-term success of your farm and ensures that Canadians continue to have access to nutritious, locally produced dairy products made with 100% Canadian milk. Your commitment to efficiency and stewardship is why Dairy Farmers of Canada has set a goal to achieve net zero greenhouse gas (GHG) emissions by 2050 on Canadian dairy farms.

[Net Zero by 2050: Best Management Practices Guide to Mitigate Emissions on Dairy Farms](#) provides an overview of the practices that will help reach this target. Every farm is unique, and that means that different strategies will work for different operations. Every farm has the opportunity to contribute to reaching net zero by adopting further best management practices (BMPs) to reduce emissions and increase carbon sequestration in a voluntary way. This factsheet highlights the **manure management** practices in the guide.



Building greater
sustainability in

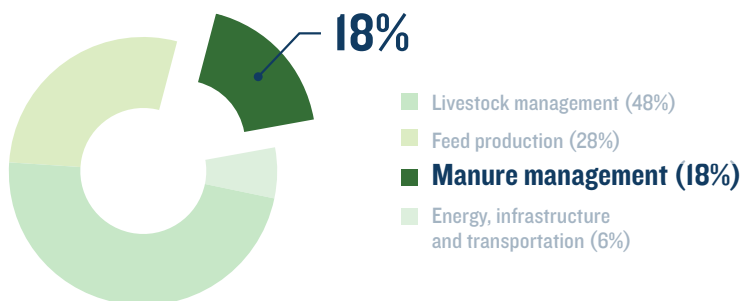
MANURE MANAGEMENT

Improving the way you manage the manure on your farm can help realize its full benefits, from improved soil health to renewable energy generation, while minimizing costs and reducing environmental risks. ‘Wetter’ conditions (less oxygen) favour the production of methane, while drier conditions (such as in a crust on top of manure) result in methane consumption (breaking it down). Management practices that avoid methane production and promote methane consumption help mitigate GHG emissions.

LOWERING THE CARBON FOOTPRINT OF CANADIAN MILK PRODUCTION

Dairy Farmers of Canada conducts life cycle assessments every 5 years to measure the carbon footprint of milk production and identify areas for continuous improvement. In 2016, emissions came from four key areas.

Manure management accounts for 18% of GHG emissions produced on Canadian dairy farms. This represents a significant opportunity for dairy farmers to implement and enhance on-farm practices to lower their carbon footprint.





ACTIONS TO REDUCE & REMOVE EMISSIONS

Adopting one or more of these Manure Management BMPs on your farm represents one of the largest opportunities to lower GHG emissions by avoiding methane production, promoting methane consumption and using manure for renewable energy production. For more specific information on adopting these practices, refer to the full [Net Zero by 2050: Best Management Practices Guide to Mitigate Emissions on Dairy Farms](#).

▶ COVERING MANURE STORAGE

to prevent GHG emissions

- Add a straw cover of at least 15 cm to liquid storage
- Consult an engineer to develop a storage cover and flare system
- Use a separator system to only put liquid manure into covered storage
- Develop a water management plan for rainwater that collects on storage covers

▶ IN-VESSEL MANURE COMPOSTING

to reduce emissions and subsequently improve soil health, increase yields and support carbon sequestration

- Install equipment to separate manure (see information provided in **Separating Solids and Liquids**)
- Compost solid manure using an in-vessel system (e.g., concrete channels with mechanical mixers, rotating steel drum type systems)

▶ REDUCING MANURE STORAGE DURATION

to decrease methane emissions

- Empty manure storage completely at least twice a year
- Consider what removal equipment works best for your manure storage (e.g., vertical pumps, side-mounted pumps, earthen manure storage pumps)
- Ensure the right moisture content for agitating and pumping
- Mix manure thoroughly to get settled solids mixed with the liquid portion before removing most of the liquid
- Take several samples while pumping out manure and analyze nutrient and dry matter for your nutrient management plan

▶ SEPARATING SOLIDS AND LIQUIDS

to limit GHG emissions, reduce odours and provide management options

- Look for separation equipment that works with your manure management system (e.g., settling basins, inclined or vibrating screens, belt or screw presses)
- Consider the water content of manure to aid in separation needs
- Time solid-liquid separation to fit with your manure handling and storage systems

▶ ANAEROBIC DIGESTION

to produce biogas and nutrient-rich fertilizer

- Assess your farm's suitability for a digester at farmingbiogas.ca
- Match the size of a biodigester to the needs of your operation and herd size
- Consider collaborating on a digester with neighbouring farms to reach the critical mass
- Consult with an anaerobic digester provider to evaluate size and location, as well as operating costs and potential ROI

“We milk about 150 cows and created our own anaerobic digestion system in 2009. Researchers monitored our methane levels before, during and for a few years after construction, and we were able to take out 90-97% of the emissions from our manure storage pit. It's a bit like taking care of an animal. It needs to be fed and cleaned, and if you treat it well, it will treat you well back.”

- Korb, a dairy farmer in Ontario

For full details and resources to support the adoption of these and other BMPs, download the guide at dairyfarmersofcanada.ca/en/farmer-resources.

